Form 442 File Number: 0625-EX-CN-2022
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Narrative Statement

Sky-Hero SA ("Sky-Hero") seeks authority to conduct experimental tests of developmental transmitting equipment in the 5 GHz band. As a related part of these tests, Sky-Hero also seeks authority to conduct market trials, as discussed below, to allow public safety entities to begin immediately using these potentially life-saving devices.

In support of this application, Sky-Hero provides the following information:

1) Applicant's Name, Address, and FCC Registration Number ("FRN"):

Sky-Hero SA
Allée de la recherche 12
1070 Anderlecht
Brussels, Belgium
BE0518 919 316

FRN: 0032387706

2) Description of Operation and Purpose of Test:

Sky-Hero has designed a small, remotely piloted aircraft and a remotely-piloted terrestrial rover that are both equipped with an on-board camera and video link that has the capability to transmit video information to its respective operators. The devices allow for visual imaging of areas which may be unsafe in order to improve situational awareness for law enforcement, first responders, military personnel, and other similar public safety entities. The intended market for these products is limited to this class of users – they are not designed for and will not be marketed to consumers.

Experimental operating authority is necessary for Sky-Hero to test the functionality and performance of a non-FCC approved, low-power 5 GHz video transmitter to be installed on the remotely piloted vehicles. This transmitter is not compliant with Part 15 technical standards; a waiver will be necessary authorize this device.

The command-and-control link between the device and the pilot will be performed using an FCC-approved 900 MHz transmitter that is in compliance with Part 15 of the FCC's rules (FCC ID QOS-RXNANO). Use of this approved transmitter does not require experimental authority.

The remotely piloted aircraft is approximately 9.25 inches by 7.5 inches by 3.5 inches and weighs approximately 1.25 pounds with battery. The primary use of the UAV will be for indoor operations – close quarter, under-roof tactical scouting missions. Because of the light weight of the aircraft and its mechanical design for indoor use, the aircraft is not designed for use

outdoors or at altitudes over 90-100 feet.[1] In addition, the fixed camera has no zoom capability which renders the camera ineffective at distances greater than 70 or 80 feet. Finally, the UAV battery provides a maximum flight time of 15 minutes per charge.

The terrestrial rover is based off the same platform as the aircraft. Its physical dimensions are approximately 8 inches by 7 inches by 4 inches and weighs approximately 3 pounds with battery. The battery provides a maximum driving time of 2 hours per charge. The antenna of the 5 GHz video transmitter is located atop the rover and its radiating element is less than 2 inches above ground.

Operation of the 5 GHz link is unlikely to cause interference to primary users of the 5 GHz band or Part 15 devices. First, Sky-Hero will not operate on frequencies now occupied by doppler radar deployed at FAA-controlled airports. Second, the maximum transmitter output power is 300 milliwatts but nearly all missions will be accomplished with 200 milliwatts or less. The antenna for the video transmitter has an average gain of -1.5 db, which would result in a maximum EIRP of 23.27 dbm or 212 milliwatts.

Third the remotely piloted aircraft is intended to be used under roof and is not designed for outdoor flights at higher altitudes. This shielding offered by the building will further attenuate emissions beyond the immediate vicinity of the mission. Fourth, the flight time of the aircraft is a maximum of 15 minutes. Fifth, the range of the terrestrial rover will be limited given the very low height above ground of the antenna.

Finally, the class of users operating pursuant to the requested experimental authority will be limited to state and local public safety and first responders engaging in serious missions to protect life and property. Such officers are well trained in the proper use of communications equipment – frivolous or unnecessary transmissions are not anticipated.

3) Dates of Operation:

Tests to begin as soon as possible for a two-year term.

4) Class(es) of Station(s):

Mobile

5) Location(s) of Proposed Operations:

Nationwide.

6) Equipment To Be Used:

The 5 GHz video link transmitter is developmental.

[1] The design of the UAV includes guards around the propellers plus additional features such as bull bars to make the device more crash resilient. When deployed outdoors, however, these elements act as sails the render the device difficult to pilot.

7) Frequencies Desired:

As a technical matter, the 5 GHz video link is frequency agile across the entire 5 GHz band. However, Sky-Hero will not operate in the bands that require Dynamic Frequency Selection for UNII devices (*i.e.,* 5250 – 5350 MHz and 5470 – 5725 MHz).

Sky-Hero therefore requests experimental authority to operate in the following bands:

5350 – 5470 MHz
5725 – 5875 MHz
5875 – 5925 MHz

8) Power Levels:

300 milliwatts EIRP

9) Type of Emission, Modulation Technique, and Bandwidth Required:

Frequency modulated, analog video with 20 MHz bandwidth. Emission designator is 20M0F38

10) Emergency Stop Buzzer Contact:

Sky-Hero and its distributor will maintain a data base of all users operating pursuant to the experimental authority. Actions to contact users will be made immediately after receiving a complaint of interference from a representative of the FCC.

The emergency contact person is:

Jon B. Becker
jbecker@aardvarktactical.com
909-451-6100

11) Request for Market Trial

To enable real-world customer experience and to allow the public safety entities to immediately begin using these potentially life-saving activities, Sky-Hero seeks limited market trial authority to allow for the marketing of 2,000 unmanned UAVs and 2,000 unmanned terrestrial rovers.

Users operating pursuant to this authority would be limited to, state and local governmental agencies engaged in public safety and emergency response activities. Also included would be non-governmental organizations engaged in public safety and emergency response activities under contract with governmental agencies. The public interest is served by allowing these organizations to use this equipment during this developmental phase in order to save lives and property and to better protect public safety personnel.